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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,186	09/11/2003	Ronald Scott Beckley	A01477	5800

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EXAMINER	
BERNSHTEYN, MICHAEL	

ART UNIT	PAPER NUMBER
1713	

DATE MAILED: 11/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/660,186	BECKLEY ET AL.	
	Examiner	Art Unit	
	Michael Bernshteyn	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 September 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *7-10* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 11-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-20* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action follows a response filed on September 28, 2006.

2. In view of the pre-appeal brief request for review, the prosecution of the application was reopened.

3. Claims 1-6 and 11-20 are pending.

Claim Rejections - 35 USC § 103

4. The test of this section of Title 35 U.S.C. not included in this action can be found in a prior Office Action filed on December 15, 2005.

5. Claims 1-6 and 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable as obvious over Irie et al. (U.S. Patent 5,959,028).

Irie discloses a resin composition curable through a Michael reaction between (a) a component having a plurality of α, β-unsaturate carbonyl groups and (b) a component having a plurality of activated methylene group in the presence of a catalyst is disclosed. The activated methylene component is a polymer of an asymmetric malonate ester in which one of carboxyl groups is esterified with an alkanol while the other carboxyl group is esterified with hydroxyalkyl (meth) acrylate or polyoxyalkylene glycol mono(meth)acrylate (abstract).

With regard to the limitations of claims 1-6 and 11-20, Irie discloses curable resin composition comprising: (a) a component containing a plurality of α,β-ethylenically unsaturated carbonyl groups in the molecule; b) an acryalte polymer containing a

plurality of malonate-terminated pendant groups in the molecule; and (c) a catalyst capable of promoting the Michael reaction (col. 2, lines 10-15).

Component (a) is a compound or polymer having a plurality of ethylenic unsaturations between carbon atoms at the α and β positions relative to a carbonyl group. Typical examples of such compound are **acrylic or methacrylic** (hereinafter collectively referred to as "(meth) acrylic") **esters of polyhydric alcohols** such as ethylene glycol di(meth)acrylate, diethylene glycol di(meth) acrylate, propylene glycol di(meth)acrylate, neopentyl glycol di(meth)acrylate, trimethylolpropane tri(meth) acrylate, glycerol tri(meth)acrylate, pentaerythritol tetra(meth)acrylate and the like.

Further examples of component (a) include polyether acrylate resins such as **polyethylene glycol di(meth) acrylate**, etc. (col. 3, lines 30-33).

When component (a) is a resin, its molecular weight ranges between 400 and 100,000, preferably between 600 and 10,000, and the alkenyl equivalent weight ranges between 100 and 10,000, preferably between **100 and 1,000**, which is within the claimed range (col. 3, lines 36-39).

Component (b) may be produced by copolymerizing a malonate-terminated acrylate monomer with a copolymerizable acrylic and/or non-acrylic monomer as exemplified in connection with component (a) (col. 3, lines 44-47). The malonate-terminated acrylate monomers have the formula, which is substantially identical to formulas in claim 12 (col. 3, lines 52-57).

Examples of copolymerizable acrylic monomers include alkyl (meth)acrylates such as methyl, ethyl, propy, n-butyl, isobutyl, t-butyl, 2-ethylhexyl or lauryl

(meth)acrylate; hydroxyalkyl (meth)acrylates such as 2-hydroxyethyl (meth) acrylate; aryl or aralkyl (meth)acrylates such as phenyl or benzyl (meth)acrylate; and other acrylic monomers such as acrylamide, methylene-bis-acrylamide or acrylonitrile. Examples of copolymerizable non-acrylic monomers include styrene, α-methylstyrene, itaconic acid, maleic acid, vinyl acetate and the like (col. 4, lines 4-13).

Component (c) of the resin composition of the present invention may be a strong base. Examples thereof include **alkali metal hydroxide** such as sodium hydroxide or potassium hydroxide; **alkal metal alkoxide** such as sodium methoxide or potassium ethoxide; quaternary ammonium hydroxides such as tetrabutylammonium hydroxide, etc. (col. 4, lines 25-30).

The proportions of component (a) and component (b) in the curable resin composition of the present invention generally lie between **2:1 and 1:2**, preferably between 1.5:1 and 1:1.5 relative to the double bond and the activated methylene to be added thereto. The proportion of component (c) may range generally between 0.1 and 10.0 equivalent %, preferably between 0.2 and 5.0 equivalent % based on the sum of component (a) and component (b), which are within the claimed ranges (col. 6, lines 11-18).

With regard to the limitations of claim 1, Irie does not disclose that the curable mixture comprises 5% or less by weight non-reactive volatile compounds, based on the total amount of curable mixture.

It is worth to mention that Irie discloses in example 31 (col. 12, lines 40-65) the amount of non-reactive volatile solvent (isopropyl alcohol) is 8%, which is close to the

instantly claimed 5%. In the absence of showing criticality in the specification of maintaining the amount of 5% or less by weight non-reactive volatile compounds, based on the total amount of curable mixture, it is the examiner position to believe that Irie's curable mixture characterized by exactly the same reactive equivalent ratio and the same compounds, such as multi-functional Michael donor, multi-functional Michael acceptor and an anion of a Michael donor, each of them has molecular weight within the claimed ranges, would be substantially identical to the instant claimed curable mixture.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the adjusted minimum amount of non-reactive volatile compounds in Irie's curable mixture with reasonable expectation of success because it is well known that the less amount of volatile organic compound is in the composition, the more tendency of liquid material to pass into the vapor state, which is highly desirable for coatings, adhesives, etc.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Bernshteyn whose telephone number is 571-272-2411. The examiner can normally be reached on M-F 8-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Bernshteyn
Examiner
Art Unit 1713

MB
11/06/2006

LING-SUI CHOI
PRIMARY EXAMINER